

Appendix:

Kentucky's Agricultural Assets

Although production agriculture accounts for only a little more than 3 percent of Kentucky's gross state product, more than 30 percent of the state's economic activity is agriculture-related. The following appendix contains a brief catalogue of the Commonwealth's agricultural assets.

Estimates of the total economic impact of Kentucky's agriculture and forestry industries are given in Table 1. Gross state product, personal income, and employment are given as three measures of economic impact. Gross state product is the sum of personal income, property income, and indirect business taxes; this measure of added value is essentially sales net of the cost of intermediate inputs. Gross state product is considered to be the best measure of economic impact because it avoids the problem of double-counting economic activity as is the case with commonly used measures like total cash receipts or sales. Personal income equals employee compensation plus proprietor income. Employment is a count of the number of jobs.

Agriculture (crop and livestock production) accounts for 6.3 percent of Kentucky's 2.2 million workers, 2.9 percent of the state's personal income, and 3.3 percent of gross state product. Adding in the direct, indirect, and induced effects of the agricultural input industry (feed, fertilizer, etc.), agricultural processing (poultry processing, cheese manufacturing, etc.), and forestry (sawmills, furniture manufacturing, etc.) means that this broader definition of agriculture accounts for 11.5 percent of employment, 8.4 percent of personal income, and 11.4 percent of the state's total economic activity. If food retailing is included in the analysis, the total economic impact of the food and fiber industry in the Commonwealth makes up 20.8 percent, 13.4 percent, and 16.4 percent, respectively, of employment, personal income, and gross state product.



Direct, Indirect, and Induced Economic Impact of Kentucky's Agricultural and Forestry Industries^a

Sector ^b	Measures of Economic Impact		
	Jobs ^c	Personal Income ^d (thousands)	Gross State Product ^e (thousands)
KY State Total	2,188,577 ^f	\$80,435,215 ^g	\$100,076,000 ^g
Production Agriculture	137,443	\$2,332,621	\$3,332,531
Percent of KY State Total	6.3%	2.9%	3.3%
Ag Inputs Production Processing & Forestry	251,905	\$6,724,384	\$11,428,679
Percent of KY State Total	11.5%	8.4%	11.4%
Ag Inputs Production Processing Forestry & Food Retailing	455,224	\$10,786,362	\$16,452,494
Percent of KY State Total	20.8%	13.4%	16.4%

^a Estimated using the Minnesota IMPLAN Group, Inc. input-output software, IMPLAN Professional 2.0.1011, and the latest available regional economic data for Kentucky.

^b Detailed sector definitions are given in the Technical Appendix.

^c Number of employees.

^d Sum of employee compensation and proprietor income.

^e Sum of personal income, property income, and indirect business taxes. This measure of value-added is also equivalent to sales less the cost of intermediate inputs.

^f Source: U.S. Department of Labor, Bureau of Labor Statistics.

^g Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Economic Sector	Sales Increase for every \$1,000,000 increase in agricultural sales
Transportation	\$ 75,930
Manufacturing	\$149,120
Banking and Finance	\$128,490
Retail/Wholesale Trade	\$ 89,690/68,390

Tourism and Entertainment

Tourism is a large and growing sector of the Kentucky economy. The most recent data from the Kentucky Department of Tourism shows nearly 19 million tourists visiting Kentucky in 1999, generating an economic impact of \$8.2 billion.

Interest in attracting more tourist dollars through the establishment of more permanent farmers' market facilities and expanded promotional programs continues to increase nationally. The states surrounding Kentucky have realized considerable success in this area. The 1997 Census of Agriculture indicated Kentucky ranked 43rd in direct sales per farm (\$2,723 per farm) and 31st in total direct marketing sales (\$4.7 million) reported for the state, despite a very high level of tourist activity.

Enhancing Existing Assets to Build Common Wealth

The Governor, the General Assembly and public agricultural agencies and institutions are providing a record level of resources and technical assistance to farm families. The amount of money committed to aid tobacco producers and their communities is led by Kentucky's share of the \$5.15 billion National Tobacco Growers Settlement Trust and Kentucky's \$3.5 billion share over 25 years of the 1998 tobacco Master Settlement Agreement.

Approximate future National Tobacco Growers Settlement (Phase II) payments to Kentucky tobacco farmers:

2002	\$148,000,000
2003	\$148,000,000
2004	\$148,000,000
2005	\$148,000,000
2006	\$148,000,000
2007	\$148,000,000
2008	\$148,000,000
2009	\$ 87,500,000
2010	\$ 87,500,000

State Agricultural Overview

Certain Kentucky agricultural sectors have consolidated considerably over the last 15 years. Cattle, dairy, swine, and sheep farms have diminished in number while the value of these livestock enterprises has generally increased to over \$2.16 billion in cash receipts in 1999, up from the \$1.39 billion in 1985 (KASS, 2000). The highest rates of growth have occurred among farms producing horses and mules.

Total farm product sales in Kentucky were \$3.61 billion in 2000. While tobacco accounted for Kentucky farm sales of approximately \$674 million in 2000, livestock enterprises generated \$2.47 billion in farm product sales. (KASS 2001), led by the equine industry at \$1.17 billion (Kentucky Thoroughbred Association estimate) and cattle at \$541 million. Forestland makes up 50% of Kentucky's land area. Over 400,000 individual landowners own ninety-three percent of this area. Forest resources produce an estimated \$4.3 billion in economic activity on an annual basis.

Other farm products account for significant receipts. Broilers accounted for \$344 million, and dairy products generated \$229 million. Corn (\$246 million), soybeans (\$164 million), wheat (\$58 million), and hay (\$48 million) are also widely represented in Kentucky.

Floriculture (\$28.7 million), nursery, greenhouse and sod production (\$27.2 million), vegetables, fruits, nuts and berries (\$15 million) all contributed to Kentucky's agricultural sales in 2000. There seems to be significant opportunity for growth in these areas. For example, fruit and vegetable production in Kentucky was less than 20% of that in neighboring states with similar resources.

Beef Cattle

There are 48,000 farms in Kentucky with cattle. The beef cattle enterprise provides a base income for many farms. It generates a return to labor and to the forage base on land with few other income opportunities. In 2000, cattle and calves generated \$541 million of gross receipts, compared to \$674 for tobacco.

Almost all dimensions of the livestock/meat sector are changing in response to new business structures (vertical integration and alliances, branding); food safety concerns; environmental interests; health issues and trade policies. These will continue to cause change in traditional enterprises.

Hay and Forages

Kentucky harvested 250,000 acres of alfalfa hay yielding 725,000 tons in 1999. All other hay amounted to 2.15 million acres yielding 4.08 million tons. Total hay harvested and yield per acre have increased steadily over the last 20 years, with yields and total acreage harvested more than doubling during this period. The value of all hay, according to KASS, was \$440 million in 1999 and \$491 million in 1998.

The actual sales of hay are considerably less than the total produced. The 1997 Ag Census indicated hay sales to be about \$58 million. A significant amount of hay is utilized on the farm in support of other farm enterprises. The most active forage areas parallel closely with the top tobacco areas. Improvements in forages lead to improvements in beef cattle, dairy, and equine in addition to adding more income resulting from direct sales.

Forestry

Forestland covers 12.5 million acres in Kentucky or 50% of Commonwealth land area. Ninety-three percent of this area is owned by over 400,000 individual landowners for an average of approximately 30 acres each. Ninety-three percent of this resource is composed of hardwoods and 7% of conifers. The predominant species are oak and hickory, with good quantities of yellow poplar, ash, maple, beech and walnut. While this area is the third largest hardwood forest in the country, past management has resulted in a resource base that is 72% grade 3 or worse (in which grade 1 is best, grade 2 next, then grade 3, grade 4 and cull). This situation means that on an average acre having 100 mature stems, 72 of them are low grade.

There are over 950 wood industry companies located in the state. The primary production segment is composed of 391 individual businesses with 560 secondary utilization enterprises contributing value-added production to the materials generated by the primary processors. These companies employ over 7,100 individuals in the primary sector and approximately 16,000 in the secondary. The market size for the industry is estimated at \$4.3 billion annually and increasing. Since 1994 an additional 7,250 new jobs have been created. Sixty percent of this increase has been a result of existing plant expansion. The other 40% has occurred with the establishment of 50 new plants of which one-half relocated here from out of state. These new plants reported an investment of \$286 million.

Grain

Kentucky ranked 14th in the United States in corn for grain production in 1999. Large crops in 1999 and 2000 nationally have depressed corn prices, but have led to very active export markets. Corn yields have driven steadily upward over the last 50 years as production technology has advanced. The acreage in the state dedicated to corn has been fairly stable for the last 12 years at around 1.2 million acres.

The number of farms growing corn has declined with each Agricultural Census over the last 25 years, falling to 11,021 farms in 1997 from 39,495 farms in 1974. Despite declining farm numbers and erratic prices, sales grew from \$346 million in 1987 to \$624 million in 1997.

Kentucky ranked 17th nationally in soybean production in 1999 with 24.15 million bushels of production. Wheat is also relatively important in value as a Kentucky grain crop. Corn (43.8%), soybeans (43.8%), and wheat (11.2%) together made up the largest sources of grain receipts in the 1997 crop year and continue as the major grain enterprises. Small amounts of sorghum, barley, and oats are also produced.

The number of soybean farms, much like corn, has also been in steady decline in Kentucky since peaking in 1982. Low soybean prices nationally, combined with poor growing conditions and yields in Kentucky, have led to declines in total production and total value for soybeans in the state. Acreage devoted to wheat production nationally continues to decline. U.S. yields, however, have been excellent. In Kentucky, winter wheat production has been up, hovering at around 25 million bushels in recent years.

Poultry

Poultry production has expanded at a rapid rate in Kentucky. Broiler production has grown from less than 3 million birds to 188 million birds in 10 years. The value of production has grown from less than \$5 million to \$363 million in 1999.

Dairy

There were 1,958 Kentucky dairy farms as of May 2000. The state lost 151 Kentucky dairy farms (7.2%) between January 1999 and May 2000. Kentucky dairy production is concentrated in Barren and Adair Counties. Other counties with over 75 dairy farms are Hart, Fleming, Lincoln, and Metcalfe. The average herd size in Kentucky is approximately 68 cows. 1998 average milk per cow in Kentucky was 12,214 pounds, compared to the national average of 17,192 pounds. Prices were lower than the 5-year average during every month of 2000. Between 1996 and 1999, prices were characterized by unprecedented volatility. The U.S. milk supply is growing very rapidly in the West, where production costs are under \$11/cwt. versus Kentucky production costs exceeding \$14/cwt.

Horticulture

Horticulture is a complex sector that involves a variety of specialized, high-input, high-value enterprises. Floriculture (\$27.4 million in sales), nursery crops (\$19.8 million in sales), vegetable crops (\$40 million in sales), fruit crops (\$13.3 million), and landscape, interior, and nursery sales and service (\$136 million) all contribute to total agriculture sales in Kentucky.

Horticulture has not been as big a sector in Kentucky as in neighboring states. Kentucky fruit and vegetable production is less than 20% of that observed in Indiana or Tennessee, states with very similar natural resources.

Economic Impact of a \$100,000 Increase in Sales Within Selected Current Commodities in Kentucky

Commodity	Indirect Sales Impact	Induced Sales Impact	Total Sales Impact	Related Commodities Impacted	Ag Jobs Created	Total Jobs Created
Beef Cattle	34,497	68,880	207,377	Hay & pasture, Feed grains	3.6	4.8
Poultry	32,312	43,483	175,794	Food processing, Oil bearing crops	1.0	1.8
Pork	45,413	49,807	195,220	Hay & pasture, Feed grains, Food processing	2.5	3.5
Dairy	17,316	79,912	197,228	Hay & pasture, Feed grains, Food Processing	1.5	2.8
Tobacco	34,999	57,255	192,254	Ag services, warehouses	3.7	4.9
Oil Bearing crops	16,616	81,183	197,799	Food processing, Ag services	2.5	3.9
Feed grains	18,042	77,924	195,966	Food processing, Ag services	2.0	3.3
Food grains	20,073	76,662	196,735	Food processing, Ag services	2.8	4.1
Equine	30,176	60,919	191,095	Hay & pasture, Oil bearing crops, Feed grains, Ag services	2.0	3.1

Indirect effects measure impacts on upstream and downstream economic activity within each sector. Induced effects measure increased economic activity within the local economy outside of the commodity marketing channel. A summary of the indirect and induced effects within each of the general sectors by commodity is available upon request from the Governor's Office of Agricultural Policy.

Source: Analysis based on IMPLAN multipliers using 1997 Bureau of Economic Analysis data. For more information regarding IMPLAN, contact the Governor's Office of Agricultural Policy.

New and Emerging Products

New and emerging products are being explored in Kentucky. Many of these enterprises involve small-scale production targeted to niche markets. Production costs, market information, sources of competitive advantage, and prospects for growth are difficult to measure.

Selected New and Emerging Commodities Currently Being Produced in Kentucky

Chestnuts	Specialty peppers
Pawpaws	Specialty produce
Pecans	Organic produce
Christmas trees	Ginseng
Wine grapes	Medicinal herbs
Table grapes	Edible soybeans
Blackberries	Sorghum
Raspberries	Floriculture
Freshwater shrimp	Native landscaping material
Trout	Sod
Catfish	Meat goats
Paddlefish	Dairy goats
Largemouth bass	Pastured poultry
Hybrid striped bass	Premium and organic beef

Food Processing and Value-Added Capacity

The production of food and related products is one of Kentucky's major industrial activities, ranking fourth in employment among the state's major manufacturing industry groups. The Kentucky Department of Public Health 2001 Establishment Profile lists 1049 food processing establishments in the state. This sector accounts for approximately 6.5 percent of the state's total manufacturing employees.

The meat products industry had the largest number of employees, approximately 33 percent of the Kentucky food industry's total employment. The food industry's second largest employer is bakery products with 26 percent of total employment. Following the baked goods industry in employment are the beverage industry, preserved fruits and vegetables, and dairy products.

From 1987 to present, the Kentucky Economic Development Cabinet announced 13 new food processing plants and 67 plant expansions for the state. This growth in the food processing industry is expected to create over 1,900 new jobs in Kentucky.



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